

SOME NEW GENERA AND SPECIES OF *SIPHONAPTERA*.

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1. *Xenopsylla astia* spec. nov. (Fig. 1).

♂. Agrees with *X. nubicus* Roths. (1903) in nearly all details, with the exception of the genitalia. As in *nubicus*, *cheopis* and several other species, the frons bears on each side only two sensory organs (pale dots), the third one being absent. The occiput has one bristle towards the base of the antennal groove and another above the centre. The hindcoxa bears three bristles posteriorly at the apex. The bristles at the apex of the foretibia are thicker than in *nubicus*. The eighth abdominal sternite has seventeen to twenty bristles on each side. The most distal one of the ventral bristles of this segment is much shorter and thinner than the two preceding bristles, the new species agreeing in this character with *nubicus* and differing from *cheopis*, which has no bristles distally to the two long ones.

The clasper bears two movable processes. The upper or inner one is long and gradually narrows to the apex, which is rounded (Fig. 1, F<sup>1</sup>). The second

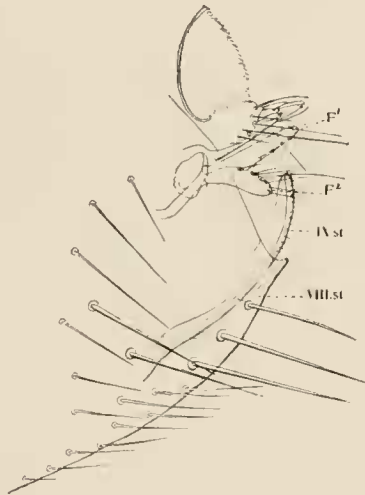


Fig. 1.—Clasping organs of *Xenopsylla astia* ♂.

process (F<sup>2</sup>) is almost the same as in *X. cheopis*, the upper edge being convex and the lower concave. One of the bristles of this process is much longer than the others. In the type specimen only seven bristles are visible on this process. In a second specimen the process has a slightly different position, presenting its upper surface and hence appearing broader. In this specimen there are eight bristles.

The ninth sternite resembles that of *X. nubicus*, but is distinctly broader,

at least the more strongly chitinised part, especially distally. The anal tergite bears on each side four small and two moderately long bristles.

Two ♂♂ from Rangoon, Burma, taken off rats, December 4, 1907.

Type in the British Museum.

### *Acropsylla* gen. nov.

♀. The labial palpus consists of five segments. Eye reduced, non-pigmented and placed far down (Fig. 2). Two spines at the genal edge, which is short. Antennal groove open, continued to the vertex by means of a suture and internal incassation. Club of antenna segmented all round, much longer than broad. Pronotum with comb. Three antepygidial bristles, of which the upper one is short. First midtarsal segment a little shorter than second. Hindcoxa without

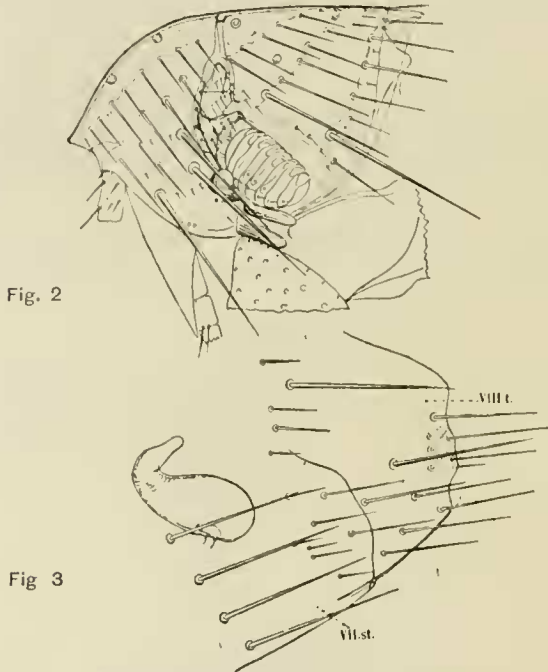


Fig. 2.—Head of *Acropsylla epaema* ♀.

Fig. 3.—Abdominal segments VII. and VIII. and receptaculum seminis of the same.

comb of spines on the inner surface. Fifth segment of all the tarsi with five pairs of lateral bristles, the first pair ventral but not placed in between the second pair.

The only species known to us reminds one strongly of *Chiastopsylla numac* Roths. (1904) by the peculiar shape of the head. But in *Chiastopsylla* the labial palpus consists of four segments only, the eye is pigmented and placed much farther away from the genal spines, the hindcoxa bears a comb on the inside and the fifth tarsal segment has only four pairs of lateral bristles.

The new genus is one of the numerous derivations from *Ceratophyllus*, a genus which may be considered a central branch of which *Ctenophthalmus*, *Acropsylla*, *Chiastopsylla*, etc., are offshoots.

2. *Acropsylla episema* sp. nov.

♀. A pale species, of which we have only the ♀.

**Head.**—The frons is produced into a kind of snout at a short distance from the maxillary palpi (Fig. 2). The two genal spines are placed apart from each other and are both rounded at the apex. There are sixteen long bristles on the frons (8, 3, 3, 2), the last two being the longest, and also a number of small hairs. Below the eye there are two pale dots, whose position is not the same on the two sides of the head; another pair is placed near the genal edge. There are two sensory organs (pale spots) on each side of the anterior part of the frons. The occiput has three rows of bristles. The first and second segments of the maxillary palpus are nearly the same in length, the third is much shorter, while the fourth is longer. The rostrum reaches to three-fourths of the forecoxa. The first segment of the labial palpus is longer than the fourth and shorter than the fifth, whereas the second and third together are but little longer than the fourth. The first segment of the antenna is short; the bristles of the second segment are quite short, being not longer than those of the first.

**Thorax.**—The pronotal comb consists of eighteen spines, besides a small spine on each side. The mesonotum bears three rows of bristles, besides numerous short ones which are placed at and near the base, there being on each side also three or four spines on the inside before the apex. The mesopleura bear about eleven bristles. The metanotum has likewise three rows of bristles, but those in the anterior row are less numerous than on the mesonotum. The episternum of the metathorax has two or three bristles, the sternum one large one (accompanied by a small bristle on one side of the body in our only specimen), and the epimerum nine (= 4, 4, 1). The metanotum, moreover, has a comb of eight short, stout, dark-brown spines.

**Abdomen.**—There are two rows of bristles on the tergites, the anterior row being represented by four bristles on tergite VI and by two on VII. The stigmata are placed above the first bristle on the anterior tergites, and below it on the posterior ones. The postmedian row of tergite VI contains ten bristles on the two sides together. Of the three antepygial bristles the middle one is nearly twice the length of the lower bristle and five times as long as the upper one. The bristles on the sternites number on the two sides together 2, 4, 4, 5, 5, 8.

**Legs.**—The forecoxa has more than sixty bristles. There are about twelve bristles on the outer surface of the forefemur, apart from the two subapical ventral ones. The mid- and hindfemora have a few lateral bristles near the apex, the hindfemur also bearing one lateral bristle near the base. Both these femora have two ventral subapical bristles on the outer surface and one on the inner. The dorsal bristles of the tibiae do not form a comb. The mid- and hindtibiae have eight dorsal notches, the third and sixth of which bear only one bristle on the midtibia, and the sixth one on the hindtibia. The outer surface of the midtibia has about fifteen and that of the hindtibia about twenty bristles, besides a number of bristles placed at and near the anterior edge. The midtibia has two or three bristles on the inner surface, and the hindtibia four or five. The bristles of the tarsi are numerous but short; none of the bristles reach to the apex of the next segment. The fifth segment bears ventrally at the apex two bristles, which

are placed far apart from one another. The proportional lengths of the segments are :

Midtarsus : 12, 13, 8, 5½, 11.

Hindtarsus : 26, 19, 11, 7, 12.

**Modified segments.**—The seventh sternite (Fig. 3, VII st.) gradually narrows towards the apex, which is broad and almost evenly rounded off in side-view. The eighth tergite (VIII t.) bears several small bristles above the stigma, and one large bristle accompanied by a row of four or five small ones below it. On the ventral portion of the eighth tergite there are about eight long bristles on the side and about eight shorter ones proximally to them; the apical margin, moreover, bears two long bristles and below them a thinner and shorter one and a still shorter bristle. On the inside there are near the apex two or three short and stout bristles. The stylet is nearly cylindrical from the base to the bristles. It is two and a half times as long as it is broad at the base, and bears a long apical bristle and proximally to it on the under respectively outer surface two shorter ones. The receptaculum seminis (Fig. 3) has a long, irregularly pear-shaped head, which gradually merges into the short tail.

Length : 1.7 mm.

One ♀ from Dacca in India, obtained on *Mus alexandrinus* by Capt. Liston.

#### Craneopsylla gen. nov.

All the American species hitherto placed in the genus *Stephanocircus* Skuse (1890) differ in certain characters from the Australian forms and constitute a well-defined genus.

The maxilla is not elongate-triangular in side-view as in *Stephanocircus*, but irregularly elongate-ovate with the tip somewhat pointed. The hindcoxa bears a row of spines on the inner surface. The anal tergite is not separated from the preceding segment by a broad membranous suture as in the ♀ of *Stephanocircus*, and the stylet is at the most three times as long as it is broad proximally.

Genotype : *C. wolffhuegeli* Roths. (1909).

#### *Craneopsylla achilles* spec. nov.

♂. Close to *C. wolffsohni* Roths. (1909), of which it is most probably a geographical representative. The genitalia, however, differ so much that the new insect must be regarded as a distinct species. Apart from these organs there is hardly anything by which *achilles* can be distinguished from *wolffsohni*. The comb of the helmet contains thirteen teeth on each side, instead of eleven as in the ♂ of *wolffsohni*. The genal comb consists of five teeth as in that species, but the upper tooth is much smaller and more isolated from the rest in *achilles*. The pronotum bears a comb of eighteen teeth and two rows of bristles, not three as in *wolffsohni*. The mesonotum has likewise two rows, there being no additional bristles dorsally in front of the rows.

We are by no means certain of the homology of all the parts of the modified abdominal segments of the ♂. As only a single specimen each of the ♂♂ of *wolffsohni* and *achilles* is known to us, we cannot therefore ascertain the homology by making dissections, and hence have to describe and figure the organs as they present themselves in the mounted specimens. In both species under discussion the eighth abdominal tergite bears in the ♂ a slender (internal) manubrium on each

side, which in *achilles* is turned upwards in crescent shape, whereas it is feebly curved in S-shape in *wolffsohni*. The ninth tergite is continued inwards for some distance and here deeply excised, the lower lobe thus formed being the manubrium of the clasper. The excision is wider in *achilles* than in *wolffsohni*, the manubrium (M) being likewise broader at its base and the dorsal internal portion of the segment consequently smaller. The large flap (P<sup>1</sup>) of the clasper is longer and narrower than in *wolffsohni*, and the arrangement of its bristles is different. There is an apical row of six bristles on this flap, then follow at the upper margin two more isolated bristles, and finally a row of four. The tips of these bristles incline inward. On the outer surface of the flap there are six short bristles. We do not find a homologon of the stylet-like process observed above the flap in *wolffsohni*. The two other processes, however, marked P<sup>2</sup> and F in our figure, are similar to the corresponding processes of *wolffsohni*. The movable process F bears a peculiar spine, which is

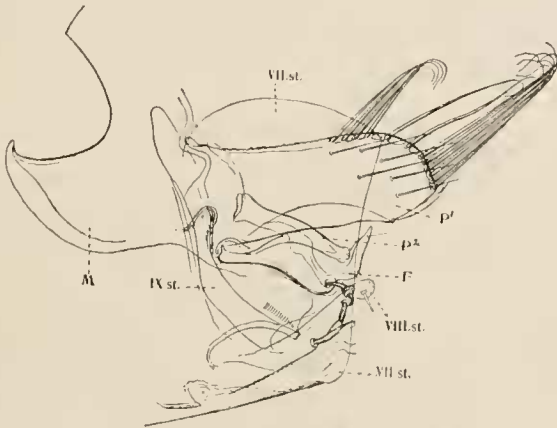


Fig. 4.—Clasping organs of *Craneopyslla achilles* ♂.

incrassate in the middle and ends in a sharp claw-like tip, the incrassate portion being transversely excavate on the distal side, and somewhat twisted. Ventrally to the clasper, the seventh sternite from inside, a slender and nearly straight process projects on each side which is not present in *wolffsohni*, and which we believe to belong to the eighth sternite. The process bears two very thick spines and near the apex a thin third spine.

Length : 2 mm.

Chota, Ecuador; taken off *Oryzomys albigularis* by L. Söderström; one ♂ in the British Museum.

#### *Craneopyslla ares* spec. nov.

♀. Very near *C. mars* Roths. (1898), from Tierra del Fuego. As only one specimen each is known of *mares* and this new form, it is impossible to say if the differences mentioned below are geographical or specific. We expect them to be geographical. Both *mares* and *ares* have a very remarkable receptaculum seminis. The head of the same is globular and separated from the tail by a deep constriction, while the portion of the tail nearest to the head is much swollen, and contrasts sharply with the curved part of the tail.

The main differences between the two forms are as follows :

The genal comb consists of six spines in *mars* and of five in *ares*. The pronotum bears in *ares* three rows of bristles, the posterior row containing on the two sides together 18 bristles, and the anterior rows together 37, the numbers being 17 and 24 in *mars*. The mesonotum has three rows in *mars* and four in *ares*, both insects bearing additional bristles at and near the base. The metanotum has three rows in both *mars* and *ares*, but there are some additional dorsal bristles in *ares* which are absent from *mars*. There are two antepygidial bristles in *mars* and three in *ares*. The bristles on the abdomen are more numerous in *ares* than in *mars*, tergite VI having (on the two sides together) a postmedian row of 17 in *ares*, and in front of it 19 shorter bristles, the numbers being 16 and 13 in *mars*, on tergite VI *ares* having 12 and 17, and *mars* 12 and 12. The sternites III to VI bear on each side five bristles in *ares* and four in *mars*. Tergite VIII has in both forms a straight apical edge, but while there are along this edge and near the ventral edge together six long bristles in *mars*, there are eight or nine in *ares*.

One ♀ from Temuco, Chile, taken off *Akodon olivaceus* by Dr. S. Bullock on February 11, 1908.

#### **Stephanopsylla** gen. nov.

♀. Near *Stephanocircus* Skuse (1890). Helmet not compressed, but depressed, being nearly horizontal; no radiating incassations; between the spines and the frontal (upper) edge two rows of small hairs and several long bristles, posteriorly on the upperside a number of minute hairs and on each side a sensory organ (pale dot). Genal comb absent except for the spine-like upper angle of the genal edge. Rostrum reaching to the apex of the forecoxa, the labial palpus consisting of eight segments. Bristles of second antennal segment numerous and short; club nearly twice as long as it is broad. Abdomen with complete combs (in the only species known on tergites I—IV). Basal abdominal sternite with numerous bristles, sternite VII with few bristles. Stylet three times as long as it is broad at the base. Subanal sensory plate ("pygidium") with more than forty grooves (44). Anal tergite not divided off by a transverse suture at some distance from the pygidium.

Genotype: *S. thomasi* Roths. (1903), described as a *Stephanocircus*.

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